Archaeological Resources Investigation of the City of Beaumont Collier Raw Water Pump Station and Pipeline in Jefferson County, Texas

By

Sunshine Thomas and Adam K. Parker

Sunshine Thomas, Ph.D., Principal Investigator

Prepared for:

Freese and Nichols, Inc.
and
The City of Beaumont

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Texas Antiquities Permit No. 30383
Technical Report No. 339

Prepared by

AmaTerra® ENVIRONMENTAL, INC.

Austin, Texas

January 2022

11842 Rim Rock Trail
Austin, Texas 78737

AmaTerra Project No. 178-060

AmaTerra Technical Report No. 339

ABSTRACT

AmaTerra Environmental Inc. performed an archaeological survey between November 29 and December 1, 2021, on behalf of the City of Beaumont and Freese and Nichols, Inc. (FNI) for the proposed Collier Raw Water Pump Station and its associated pipeline north of Beaumont, Jefferson County, Texas. The pump station footprint covers 0.8 ac, and the pipeline corridor is 2,600 ft long with the project location running between Pine Street and Lawson Canal, parallel to the Neches River. Components of the project include proposed road widening, construction of a new pump station, an access road, pipeline corridor, and an intermediate bore pit location along the pipeline corridor. The total project location footprint is 2.27 ac.

The project will be an operation of the City of Beaumont, a political subdivision of the State of Texas, and will occur on land owned by the City, including easements, and is therefore subject to compliance with the Antiquities Code of Texas (ACT; Texas Natural Resources Code, Title 9 Chapter 191, and its associated regulations [13 TAC 26]). Accordingly, all archaeological fieldwork was performed under Texas Antiquities Permit 30383 obtained from the Texas Historical Commission. The project will be completed with funding under the Federal Emergency Management Agency's Section 428 Public Assistance Alternative Procedures which requires federal-level oversight outlined in Section 106 of the National Historic Preservation Act of 1966, as amended (Section 106) in accordance with the rules and procedures outlined in 36 Code Federal Regulations 800.

AmaTerra archaeologists investigated the project location through pedestrian survey and the excavation of three shovel tests, eight mechanically excavated trenches, and four trench columns. The survey did not identify any new or previously recorded archaeological resources within the project location.

AmaTerra's archaeological survey established that no State Antiquities Landmarks-eligible archaeological resources and no unmarked burials are present within the project location. AmaTerra recommends that no further work is warranted prior to construction. In the unlikely event that potentially State Antiquities Landmarks-eligible archaeological resources are inadvertently encountered during construction, all work should cease until such time as those resources can be investigated by a professional archaeologist and coordinated with appropriate representatives of the Texas Historical Commission. In the unlikely event that unmarked burials are inadvertently encountered all work should cease, the burials protected, and access limited until the appropriate representatives of the City of Beaumont and THC can be notified and further plans made in accordance with provisions of the Texas Health and Safety Code (Title 8, Subchapter C, Chapter 711.036[a]) in addition to the requirements of the ACT.

All project related notes, records, and photographs will be curated at the Center for Archaeological Studies (CAS) at Texas State University.

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Contents

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Figures

Tables

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CHAPTER 1: INTRODUCTION

AmaTerra Environmental, Inc. (AmaTerra) conducted an archaeological survey in advance of the proposed City of Beaumont Collier Raw Water Pump Station (RWPS) project. Construction will occur parallel with the Neches River, north of the City of Beaumont, Jefferson County, Texas (Figure 1 and Figure 2). The survey was conducted on behalf of the City of Beaumont (City) and their environmental lead subcontractor Freese and Nichols, Inc. (FNI). Archaeologists conducted a pedestrian survey supplemented with three shovel tests within the project location and excavated a total of eight mechanical trenches. The survey identified no archaeological sites, above-ground cultural resources, or unmarked burials. The Principal Investigator concludes that the proposed project is unlikely to affect historic or human remains and recommends the project should proceed without further work or additional coordination required.

The proposed project includes construction of a new pump station compound encompassing approximately 0.62 acres (ac) southeast of Pine Street (Figure 3 and Figure 4). The compound will include a 10 × 10-foot (ft) transformer pad, a 22 × 48 ft generator pad, 30 × 40 ft electrical building, an above-ground flow meter, and the pump station all enclosed in a site fence. The accompanying 2,600 ft pipeline will be bored/tunneled at a depth of 10–15 ft below the surface and will require three boring pits: one at each terminus and one at an intermediate location. Each pit is estimated to be no greater than 25 ft in diameter and excavated to the pipeline installation depth (10-15 ft) for installation of a 5 × 5 ft pre-cast concrete maintenance vault. Additional project work will include collection of 13 geotechnical bores within and adjacent to the project location, resurfacing of existing portions of Pine Street, widening a 557 ft section of Pine Street by approximately 22 ft, construction of a temporary access road measuring approximately 16 ft wide and 100 ft long from Pine Street to the pump station compound, with tree-removal as necessary, and clearing and grubbing a 0.35 ac access and construction area from an existing access road to the intermediate boring pit location. Work will occur within existing City and utility easements and property. The total project location footprint is 2.27 ac.

The project will be an operation of the City of Beaumont, a political subdivision of the State of Texas, and will occur on land owned by the City, including easements, and is therefore subject to compliance with the Antiquities Code of Texas (ACT; Texas Natural Resources Code, Title 9 Chapter 191, and its associated regulations [13 TAC 26]). Accordingly, all archaeological fieldwork was performed under Texas Antiquities Permit 30383 obtained from the Texas Historical Commission (THC). The project will be completed with funding under the Federal Emergency Management Agency's Section 428 Public Assistance Alternative Procedures which requires federal-level oversight outlined in Section 106 of the National Historic Preservation Act of 1966, as amended (Section 106) in accordance with the rules and procedures outlined in 36 Code Federal Regulations 800.

Following initial coordination with the THC on July 21, 2021 (THC Tracking #202111780) on above-ground resources, no historic properties are present or affected by the project. Accordingly, the Area of Potential Effect (APE) for archaeological cultural resources is defined as the project location, including the proposed depths of impact. The project location totals 2.27 ac with excavation depths ranging 0–15 ft.

Archaeologists conducted fieldwork from November 29 to December 1, 2021. Sunshine Thomas served as the Principal Investigator. Sunshine Thomas and Miguel Calvillo performed field work, expending 64 total person-hours during the survey.

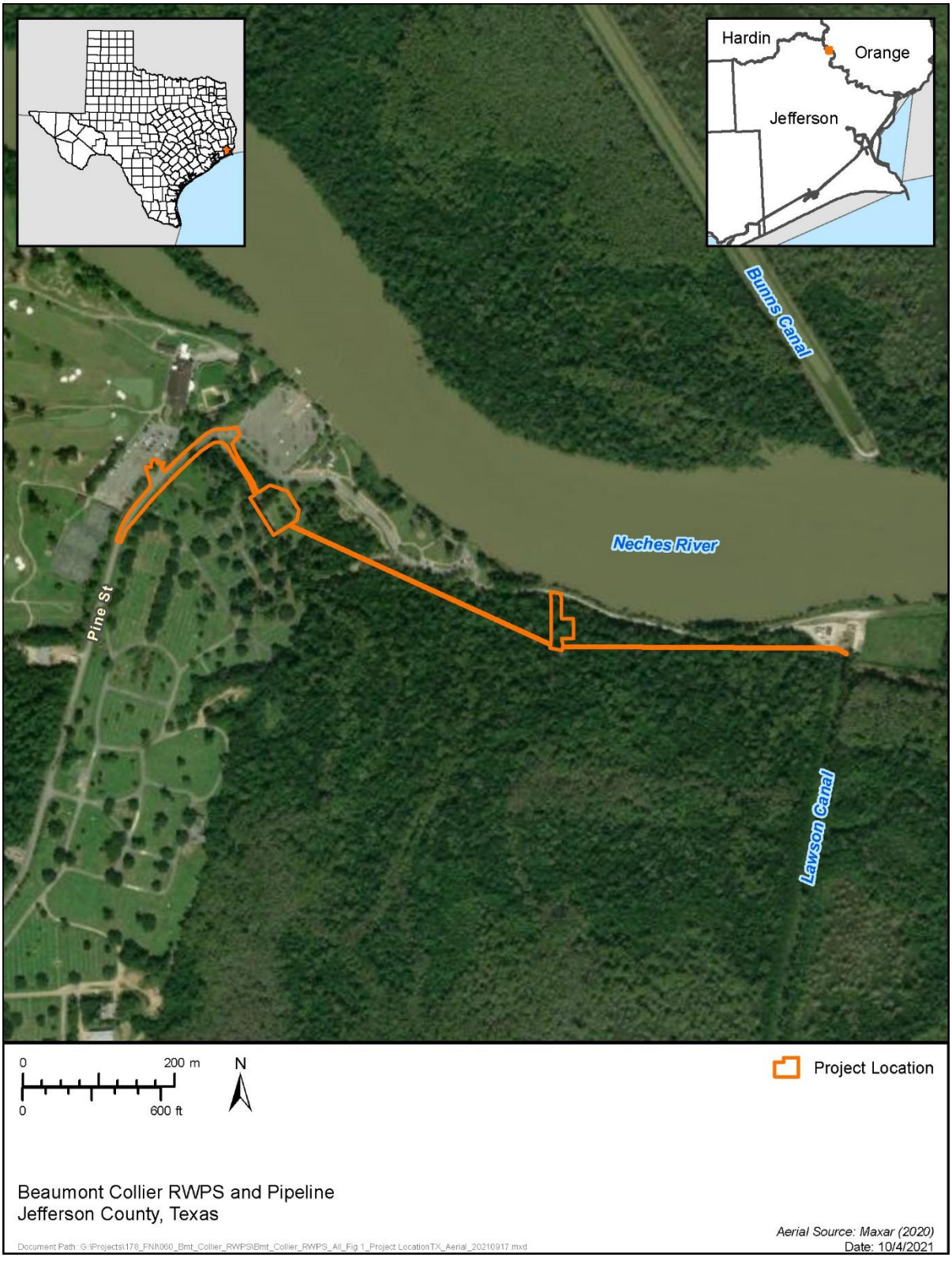

Figure 1. Project location depicted on a recent aerial image.

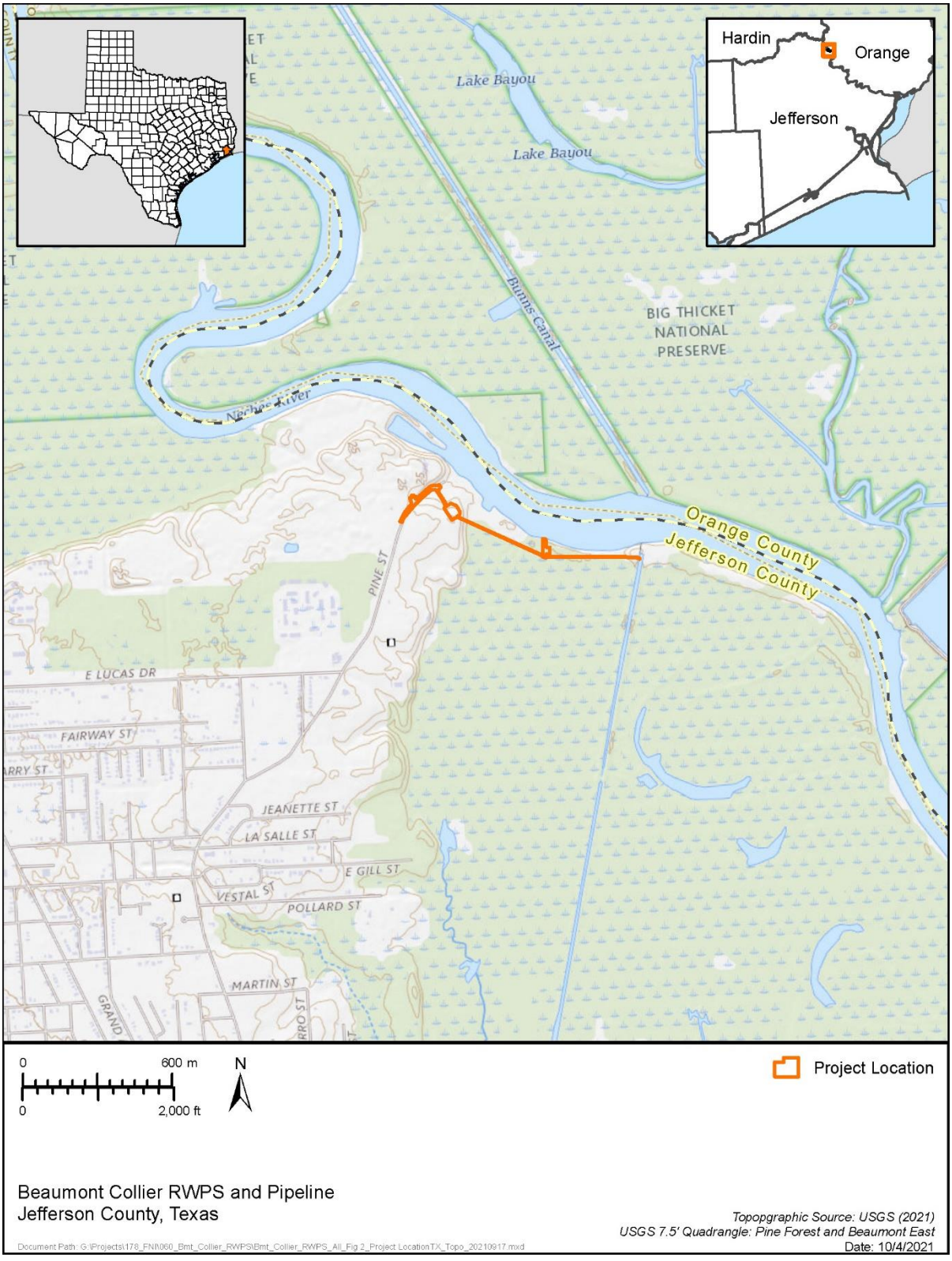

Figure 2. Project location depicted on a recent topographic map.

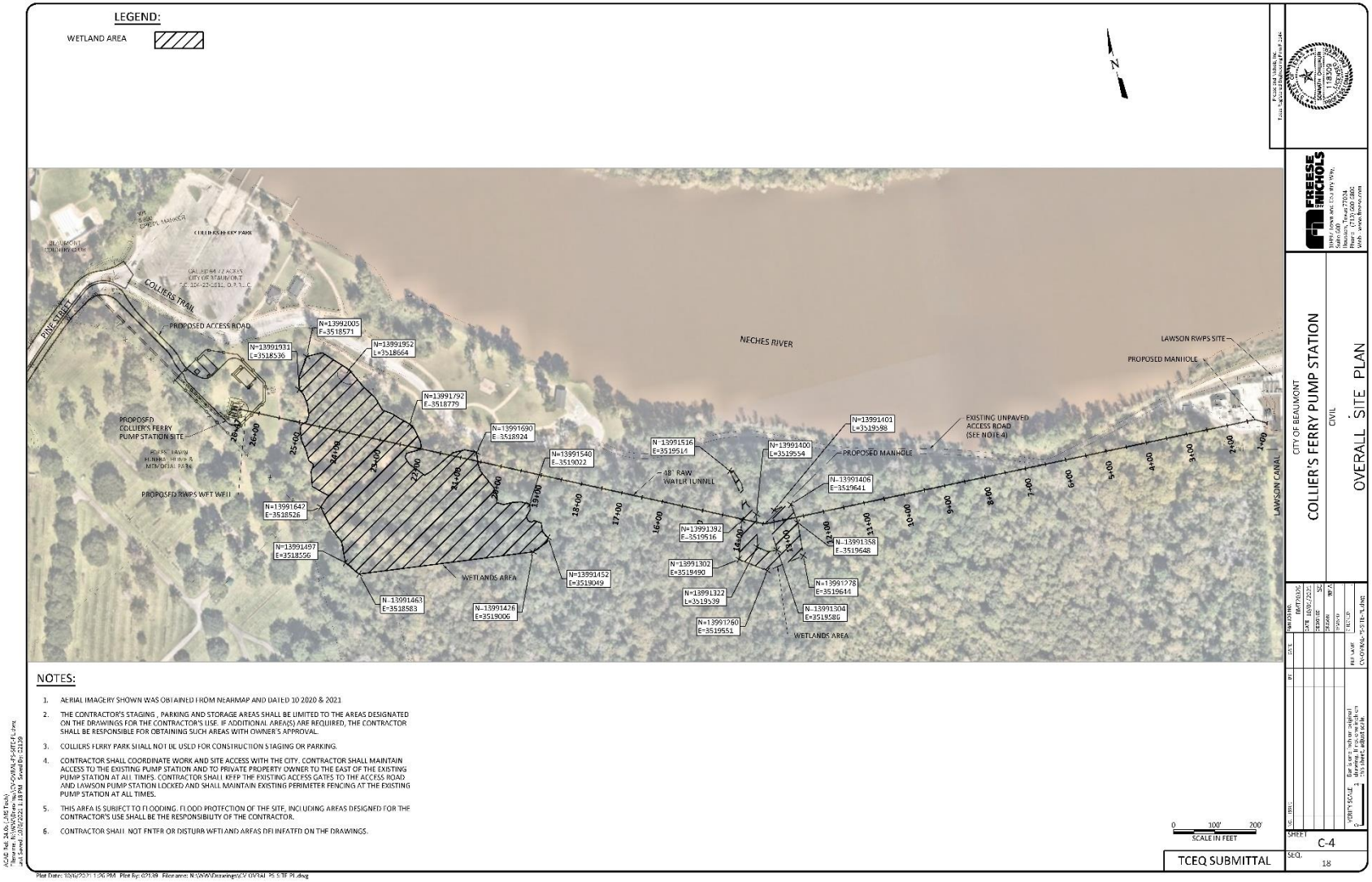

Figure 3. Overall site plan.

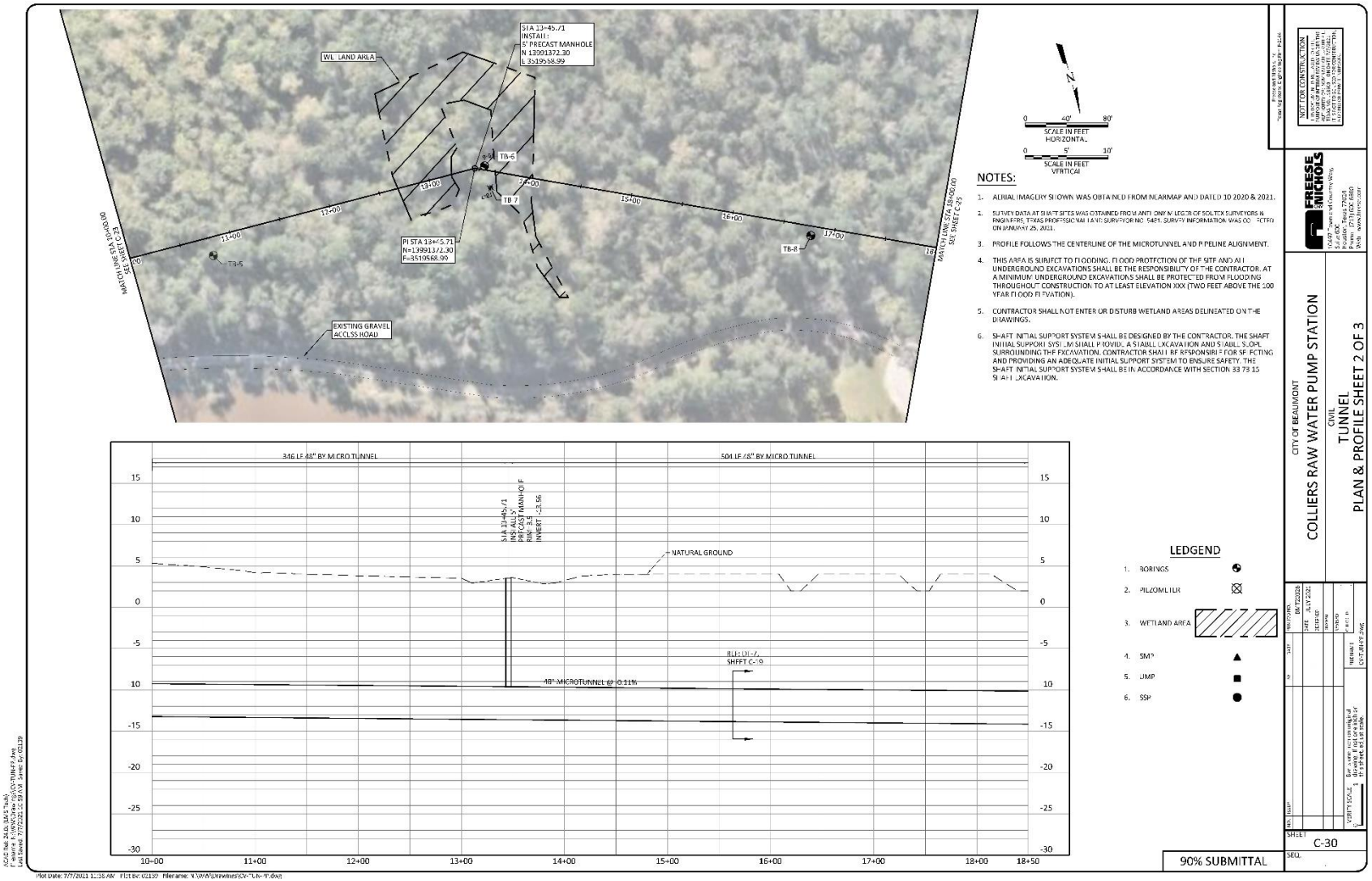

Figure 4. Project plan and profile at the intermediate boring pit location.

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CHAPTER 2: ENVIRONMENTAL SETTING

Physiography

The project location is within the Floodplains and Low Terraces level IV ecoregion of Texas within the South-Central Plains (Griffith et al. 2004). Historically, the South-Central Pains was mixed pine and hardwood forest in the past on acidic sands and sandy loams. Today, much of the area is reforested with loblolly and shortleaf pine. The Floodplains and Low Terraces are mostly alluvial deposits of the Holocene. Soils are typically somewhat poorly drained to very poorly drained and support bald cypress and water tupelo in flooded areas. Other typical species include water oak (*Quercus nigra*), willow oak (*Quercus phellos*), sweetgum (*Liquidambar styraciflua*), black gum (*Nyssa sylvatica*), elms (*Ulmus* spp.), red maple (*Acer rubrum*), southern red oak (*Quercus falcata*), swamp chestnut oak (*Quercus michauxii*), and loblolly pine (*Pinus taeda*). Mid and tall grasses provide the primary vegetation in open areas with big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparium*) switchgrass (*Panicum virgatum*), and Indiangrass (*Sorghastrum nutans*) being the most common (United States Department of Agriculture [USDA] 2006:504-506).

This interior coastal region, the Western Gulf Coast Flatwoods, typically has an elevation of 80-330 ft and receives an average precipitation from 46 to 60 in (USDA 2006:504-506). Rainfall occurs throughout the year but frequently with tropical storms that can produce large amounts of rain during the fall and winter. The project location is adjacent to the Neches River which currently flows into Sabine Lake. The floodplains and low terraces support larger wildlife like deer, coyote, nutria, cottontails, and squirrel species. Common freshwater fish species in area waterways include spotted bass (*Micropterus punctulatus*), largemouth bass (*Micropterus salmoides*), crappie (*Pomoxis* spp.), catfish (*Ictalurus* spp., *Ameiurus* spp., and *Pylodictus olivaris*), common carp (*Cyprinus carpio*), and sunfish (*Lepomis* spp.).

Geology and Soils

According to the Geological Atlas of Texas, the project location is underlain by the Pleistocene Beaumont Formation sands in the western quarter and Holocene alluvium of the Neches River in the eastern three quarters of the project location (Figure 5; USGS 2007). The Pleistocene Beaumont Formation contains mostly clay, silt, and sand. It includes stream channel, point bar, natural levee, back swamp, coastal marsh, and mud-flat deposits and is characterized by relict river channels with meandering patterns and pimple mounds on meander ridges. Meander ridges are separated by areas of low, featureless backswamp.

Soils within most of the project area include Simelake clay with 0-1% slopes (Figure 6; USDA NRCS 2020). Portions of the western project location are identified as Urban land. The Simelake clay is a deep, frequently flooded and somewhat poorly drained vertisol with a clayey alluvium parent material derived from a mix of igneous, metamorphic, and sedimentary rock. A typical soil profile exhibits an A horizon 0–15 cm underlain by B horizons characterized by slickensides and redoximorphic features. Archaeological sites from the Holocene within this soil are unlikely due to wet conditions, but alluvial deposition would be favorable to stratified site preservation if any are present. Sites are more likely to occur within the western portion of the project location on the Beaumont formation adjacent to the floodplain, however potential sites in this portion of the project location are more likely to be disturbed by modern land use.

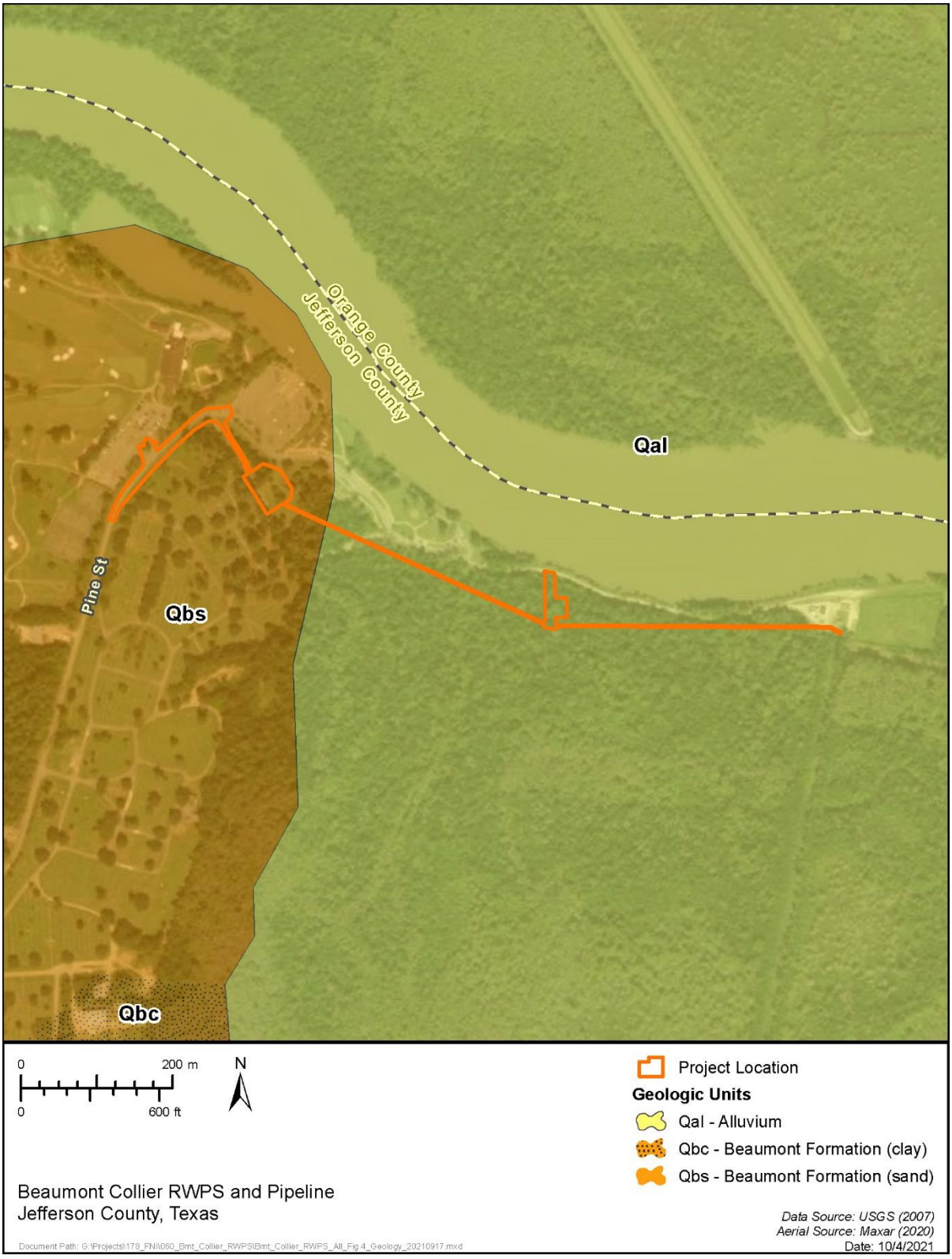

Figure 5. Underlying geology within the project location.

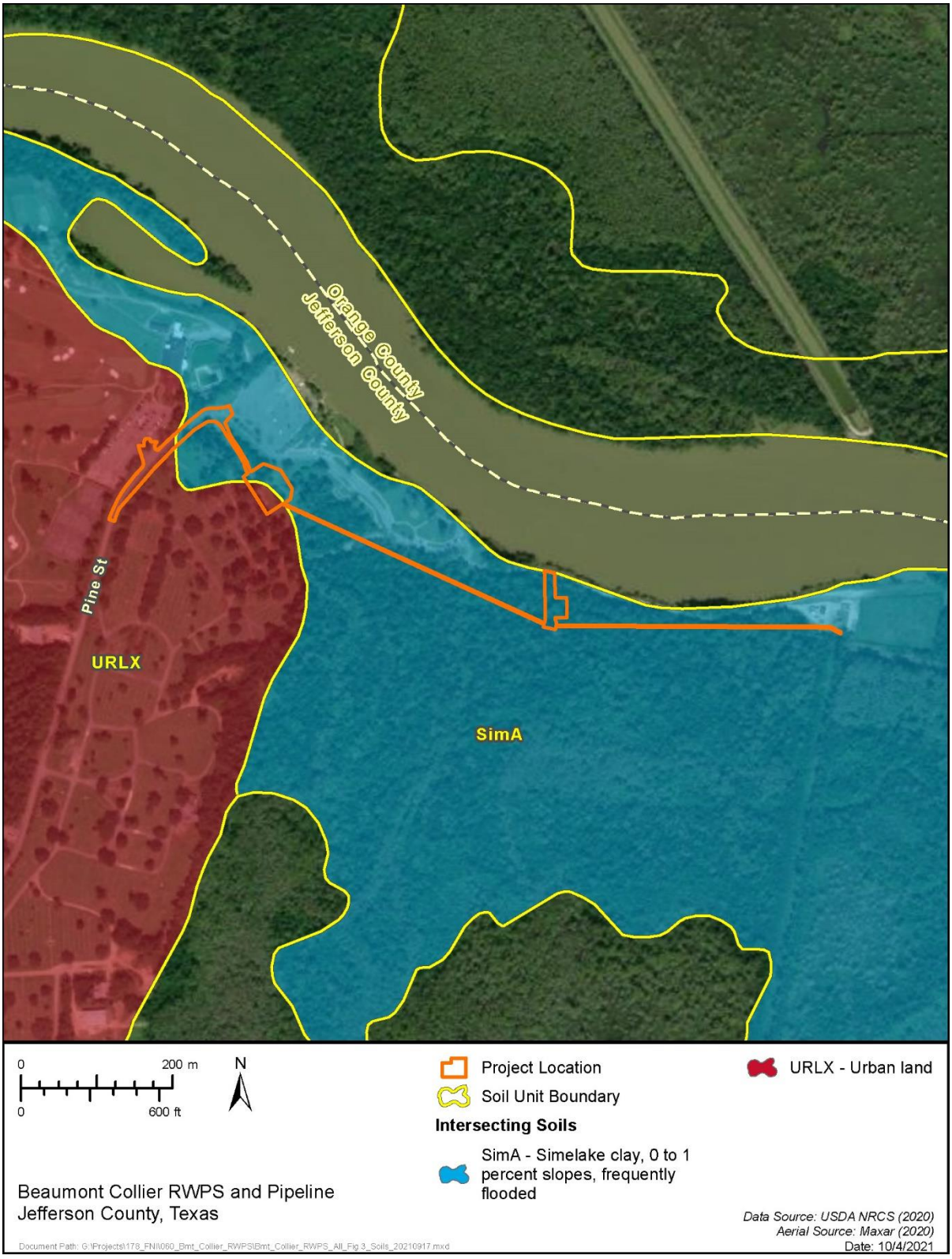

Figure 6. Documented soils within the project location.

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CHAPTER 3: REGIONAL CHRONOLOGY AND CULTURAL BACKGROUND

The project location is in the Piney Woods and Gulf Prairies and Marshes portions of the Southeast Texas archaeological region as defined by Perttula (2004). According to research conducted at archaeological sites in this region, evidence of human occupation in the region roughly spans 12,000/11,500 years before present (BP) to the present (Ricklis 2004b). These years of occupation are typically divided into five main periods based on technological and cultural changes seen throughout the archaeological record. These five main periods are as follows: the Paleoindian (12,000/11,500–8,500/8,000 BP); the Archaic (8,500/8,000–2,000/1,500 BP); the Ceramic (2,000 BP–1,250 BP [AD 700]), the Late Prehistoric (AD 700–1650); and the Postcontact (AD 1650–1950s) (Ricklis 2004a). The following is a general overview of trends seen during each period.

Paleoindian Period (11,500-8,000 BP)

The arrival of humans in the Americas occurred between 16,000 and 14,500 BP (Gilbert et al. 2008, Pitblado 2011), and until recently, it was generally thought that the Paleoindian Period in Texas did not begin until around 12,000 BP (Perttula 2004). However, new evidence from the Debra Friedkin and Gault sites in Central Texas have begun to push the date of earliest occupation back to around 15,000 BP (Swaminathan 2014; Gault School 2016). Generally, there is a lack of data relating to the Paleoindian Period in Southeast Texas and archaeological excavation of any Paleoindian site has yet to be undertaken. While many projectile points such as Clovis, Plainview, Folsom, Scottsbluff, and San Patrice have been recovered, most were from isolated or mixed contexts, surface finds, or found in excavations of later contexts (Ricklis 2004b). The distribution of artifacts suggests that most sites occur along major streams or within major stream drainages.

Because of the paucity of evidence, no detailed understanding of settlement mobility and subsistence patterns during the Paleoindian period in Southeast Texas has been developed. What evidence does exist suggests that groups likely engaged in a mix of hunting and gathering, and since many of the lithic tools recovered were made of materials that are sparse or absent in the region, extensive movement of people and materials over the landscape has also been suggested (Ricklis 2004b).

Archaic (8,000–1,500 BP)

Many Archaic sites have been found in this region, mostly near major streams, and these are represented by flaked stone dart points and other lithic tools. A general outline of dart point chronology during this period in Southeast Texas is available (Ricklis 2004a), yet the lack of any other evidence (i.e., faunal, botanical, etc.), allows for little generalization regarding subsistence strategies other than the suggestion that groups were likely engaged in some form of hunting and gathering. By the Late Archaic period, the use of poor quality and local lithic materials suggest reduced mobility and smaller, more localized territories.

The use of cemeteries in this region, most notably the Ernest Witte cemetery, became increasingly important culturally by the Late Archaic period. These cemeteries could be quite large and often contained grave goods. For example, Group 2 of the Ernest Witte cemetery contained 145 individuals along with lithic debris, bone pins, and shell beads and pendants.

Archaic sites in the Coastal region of Southeast Texas consist mostly of shell middens. Most are located along the shores of secondary bays or in and around river mouths and deltas (Ricklis 2004a). The most complete Archaic sequence of occupation in this region was recovered from the Eagle's Ridge site, a densely stratified shell midden. A large sample of features and artifacts from the earliest part of the period to the latest were recovered at the midden, which contains mostly *Rangia cuneata*,

but also oyster shells. By the Late Archaic (ca. 3,000 BP), the increase in number of sites discovered has led researchers to suggest significant population growth occurred during this period.

Ceramic Period (2,000–1,250 BP [750 AD])

The Ceramic Period in Southeast Texas has been defined as the point at which ceramics first appeared, and thus signaling the end of the Archaic Period. During the Early Ceramic period, while ceramics were introduced from Louisiana and the Lower Mississippi Valley, there is not much evidence of major changes in lifeways. Ceramic Period artifacts recovered overlying Archaic ones near river drainages suggest consistent patterns in subsistence and settlement over time. Story (1990) coined the term Mossy Grove Tradition/Culture to describe groups that occupied areas surrounding Galveston Bay (including the current project location) during the Ceramic Period.

Late Prehistoric Period (ca. 700-1650 AD)

This period is usually defined by the introduction of the bow and arrow. Evidence from the Mitchell Ridge site (41GV66) suggests that the Late Prehistoric in Southeast Texas can be divided into the Initial Late Prehistoric sub-period, represented by Scallorn arrow points, and the Final Late Prehistoric sub-period. The Final Late period correlates with the well-documented Toyah phase, as defined by an abundance of bison bone and a lithic assemblage geared towards the processing of the meat and hides of large game (Ricklis 2004b).

Postcontact

Europeans first contacted the area of Jefferson County through Spanish and French explorers. In 1528, Álvar Núñez Cabeza de Vaca led an expedition to the region, followed by René Robert Cavelier, Sieur de La Salle in 1685. Despite land disputes between the Spanish and French, by the 1730s, French fur trappers had begun trading with Native American tribes along the Sabine and Trinity Rivers. This prompted the Spanish to establish the San Agustín de Ahumada Presidio and Nuestra Señora de la Luz Mission in 1756. Further expeditions were led by the Spanish in 1777 and 1785. By the time of the Louisiana Purchase between the United States and France, the Spanish held the territory which would become Jefferson County (Kleiner 2020).

The Spanish ceded lands to the Mexican government and European-American settlement began following 1821. The first permanent European-American settlement in the region was Tevis Bluff in 1824, later renamed Beaumont. Support for the Texas Revolution was high with local volunteers taking part in the fighting and other residents providing support. Later, Beaumont became the seat of Jefferson County by act of the First Congress of the Republic of Texas in 1838 (Isaac 2020; Kleiner 2020).

During the mid-1800s, Beaumont was a small livestock center with much of Jefferson County better suited for livestock raising than cotton and other cash crop agriculture. In addition, lumber became an important economic force, with the first steam sawmill in Beaumont founded in 1856. Leatherworks and rice milling also began becoming prominent for the local economy. By the outbreak of the Civil War, The Texas and New Orleans Railroad and Eastern Texas Railroad served the region and Morgan Lines operated out of Sabine Pass to the south (Isaac 2020; Kleiner 2020).

Jefferson county residents voted for secession and local volunteers did serve in the Civil War. Several buildings in town were used for the war effort including the county courthouse being used as a hospital. In early 1862, federal troops burned several buildings near Sabine Pass and Beaumont. Following Confederate reoccupation in 1863, Federal troops attempted to take Sabine Pass through a naval landing but failed to do so and lost USS Clifton and USS Sachem (Isaac 2020; Kleiner 2020).

Following the Civil War, rail transportation increased to Beaumont. In addition, in 1901, oil was discovered at Spindletop. This led to an immediate economic boom which lasted into the 1960s. In

1908, the Neches River was channelized from Beaumont to Port Arthur, leading to increased shipping capabilities. The economy did stagnate during the Great Depression but again increased during World War II with oil refining and shipbuilding for the war effort (Isaac 2020).

Collier's Ferry Park

The Collier's Ferry Park area is well known in the local history of greater Beaumont. It was an important area crossing frequently used by travelers early during the 1700s and possibly earlier. By the 1800s it became part of the network of trails known as the Opelousas Trail that served to drive cattle between San Antonio, Texas and New Orleans, Louisiana (Campbell 2015). The Collier's Ferry crossing was, perhaps, not the primary location (Walker Papers 1968) but crossing the Neches River was challenging and driving cattle through Beaumont was somewhat unwelcome. In 1840 Beaumont enacted the 'Ordinance to Prevent Nuisances by Swimming Cattle' that required a $50 bond before crossing and placed a fine for every drowned cow. Collier's Ferry served as an alternate crossing just outside of town for cattle being driven from Liberty, Texas. As late as 1879 the Galveston *News* reported 23,000 cattle crossed at Collier's Ferry in a day (Block 1975).

Ferry operation at Collier's Ferry was the northernmost ferry crossing of the Neches River in the greater Beaumont area. The first record of operation of a ferry at the site dates to 1842 when a license was granted for operation of a ferry at or near Pine Bluff (Wilson 1968). The ferry location has been referred to by several names including Pine Bluff, Grigsby's Bluff, Monte's old crossing, and Collier's Ferry. The ferry takes its name from the Collier family who operated it in the second half of the nineteenth century (THC 1968b).

John Collier was born in South Carolina and, according to family descendants, established the ferry between 1835 (Beaumont Enterprise 1979, ca. 1970s). He lived nearby, with a house where the Beaumont Country Club is located today (Streater ca. 1970s). Jefferson County operated the ferry between 1912 and the 1940s (Wilson 1968) and established Liberty Park at the location (Streater ca. 1970s). For those without cars during this period, a car service ran from the end of Magnolia Carline to the ferry launch. Area residents used the park for swimming, fishing, and picnicking. For those taking what was known as the scenic crossing with the cars, the small ferry could transport up to three cars at a time (Figure 7; Beaumont Enterprise 1977). The last known operator ran the ferry between 1949 and approximately 1955. U.G. Bodin Jr. was a native of Jeanerette, Louisiana who moved to Beaumont in 1907. He is buried in the nearby Forest Lawn Memorial Park (Beaumont Enterprise 1970).

Figure 7. *Neches River, Collier's Ferry,* in the 1940s (GPA.I-012-BJ-240). Reproduced with permission from the Tyrrell Historical Library.

CHAPTER 4: BACKGROUND RESEARCH

The Texas Archeological Sites Atlas (THC 2021) was consulted to identify previous archaeological surveys and recorded cultural resources within 1 kilometer (km; 0.62 mile [mi]) of the project location (Figure 8). Additional background research included a review of archival maps, aerial photographs, and other sources at the Tyrrell Historical Library. Research focused on the identification of previously conducted archaeological surveys, previously recorded archaeological sites, sites listed as State Antiquities Landmarks (SALs), Recorded Texas Historic Landmarks (RTHLs), properties listed on the National Register of Historic Places (NRHP), Official Texas Historical Markers (OTHMs), and cemeteries. Background research identified one archaeological survey, three archaeological sites, three historical markers, and one cemetery within 1 km of the project location.

One previous archaeological project is recorded within 1 km of the project area. The survey was conducted under TAC Permit number 1263 (Atlas Number 8500003410 and Atlas Number 8400003404) with a grant from the Texas Parks and Wildlife Department in 1993 (Moore and Aronow 1993). The survey was divided into a 20–25-ac Area A that was intensively surveyed and a 60-ac Area B that was pedestrian surveyed. Much of the current project location, excepting the widening of Pine Street, is within Area A. This area was surveyed with 100% pedestrian survey, riverbank inspection when possible, and 15 shovel tests and additional soil probes. This survey identified no archaeological sites within the survey area.

There are three previously recorded archaeological sites within 1 km of the project area. Site 41JF1 was recorded by G. E. Arnold in 1940 and, according to geographic coordinates on the Archaeological Site Form, is located on the east bank of the Neches River. However, Arnold's description on the site form is clear in the site's location on the west bank of the river approximately 0.25 mi (402 meters [m]) south of the road leading to the Ferry (Arnold 1940a). The description indicates it is adjacent to a slough on a "flat-topped sand ridge about 150 yds W of river." Understanding the local area physiographic description to be accurate and the 0.25 mi location to be an overestimate, previous archaeologists have identified the small ridge extension immediately northeast of the cemetery to be the general location of the site (Moore and Aronow 1993). Although described as a village, Arnold only indicates finding three ceramic fragments and "occupational evidence in ditch and backslope of small road which runs across ridge."

AmaTerra archaeologists agree with the Moore and Aronow assessment of the general location of 41JF1. The mapped location of the site in Figure 8 is an approximate site placement at the summit of the ridge, immediately adjacent to the road that cuts across it based upon historical aerial photographs and current project fieldwork.

Site 41JF2 is located approximately 400 m (0.25 mi) northwest of the project location. It was first recorded in 1940 as a shell midden with bone and precontact ceramics visible on the surface. The site form notes the site was mostly inundated during high tide and that a small channel flowed through two portions of the site (Arnold 1940b).

Site 41OR95 is approximately 600 m north-northeast of the project location. It was recorded in 2011 on the eastern side of the Neches River as nine remaining portions of canals and dredge spoils created by the early lumbering industry in Orange County (Baxter and Grubb 2011).

One historical cemetery, the Forest Lawn Memorial Park Cemetery (Atlas Number 7245001805), was identified within 1 km of the project area. Previously known as the Forest Lawn Cemetery, it was initiated in 1926 (Wright 1981:87) and is currently recorded with the THC in two parts (JF-C014 and JF-C018), north and south of E. Lucas Drive. The first interments were in the west-central portion of the northern part, adjacent to the mausoleum (Danny Blanchard, Forest Memorial Park and Funeral Home Director, personal communication). The earliest obtained depiction of the location of the

cemetery is from a 1936 highway map of Jefferson County (Figure 9; Texas State Highway Department [TSHD] 1936). In the 1940s the cemetery was extended to include areas near the current northern property line. An aerial photograph from 1959 show a well maintained and demarcated boundary (Figure 10). The southern portion of the cemetery included later interments. This is evident in the 1960 topographic map that shows only the northern portion in use (Figure 11)

The OTHMs for Babe Didrikson Zaharias and J.P. Richardson, Jr: The Big Bopper are within the Forest Lawn Memorial Park Cemetery. Zaharias was an athlete that set two world records at the Olympic games in 1932 and won five major titles as a championship golfer (THC 1968a). Richardson was a recording artist, song writer, and disc jockey in the first half of the twentieth century, famously perishing in a plane crash with notable musicians Buddy Holly and Ritchie Valens in Iowa on February 3, 1959 (THC 2005).

One additional OTHM for Collier's Ferry is located to the northwest and is immediately adjacent to the project location. Archival records indicate the crossing was used as early as 1750 and was part of an existing route used frequently by area travelers. In the 1800s cattle herds on the Opelousas Trail bypassed Beaumont and crossed the Neches River at this approximate location. The ferry takes its name from the Collier family who operated it in the second half of the nineteenth century (THC 1968b). The first record of operation of a ferry at the site dates to 1842 when a license was granted for operation of a ferry at or near Pine Bluff (Wilson 1968). The ferry location has been referred to by several names including Pine Bluff, Grigsby's Bluff, Monte's old crossing, and Collier's Ferry. Jefferson County operated the ferry between 1912 and the 1940s. The ferry is noted on the 1936 highway map (Figure 9). The last known operator ran the ferry between 1949 and approximately 1955. This Neches crossing is of notable antiquity and associated archaeological sites may be present at nearby locations along the river. The location of the crossing may have varied over time and sites of past human activity are more likely near the crossing.

No recorded historical standing structures or historic properties listed in the National Register of Historic Places (NRHP), State Antiquities Landmarks (SALs), or Recorded Texas Historic Landmarks (RTHLs) are recorded within 1 km of the project location.

Previously conducted surveys and recorded cultural resources indicate that unrecorded archaeological sites are possible within the project location. There is potential for sites to occur near the river that are associated with the general use of the area as a river crossing. Cemetery records indicate nearby portions of Forest Lawn Cemetery were not used for interments until the 1940s (Blanchard, personal communication), and unmarked burials within the project location are unlikely. Based upon the environmental setting, archaeological sites are most likely to occur within the western quarter of the project location, but this portion has also been subject to significant amounts of modern disturbance.

Figure 8. Previously recorded cultural resources and archaeological surveys within 1 km of the project location.

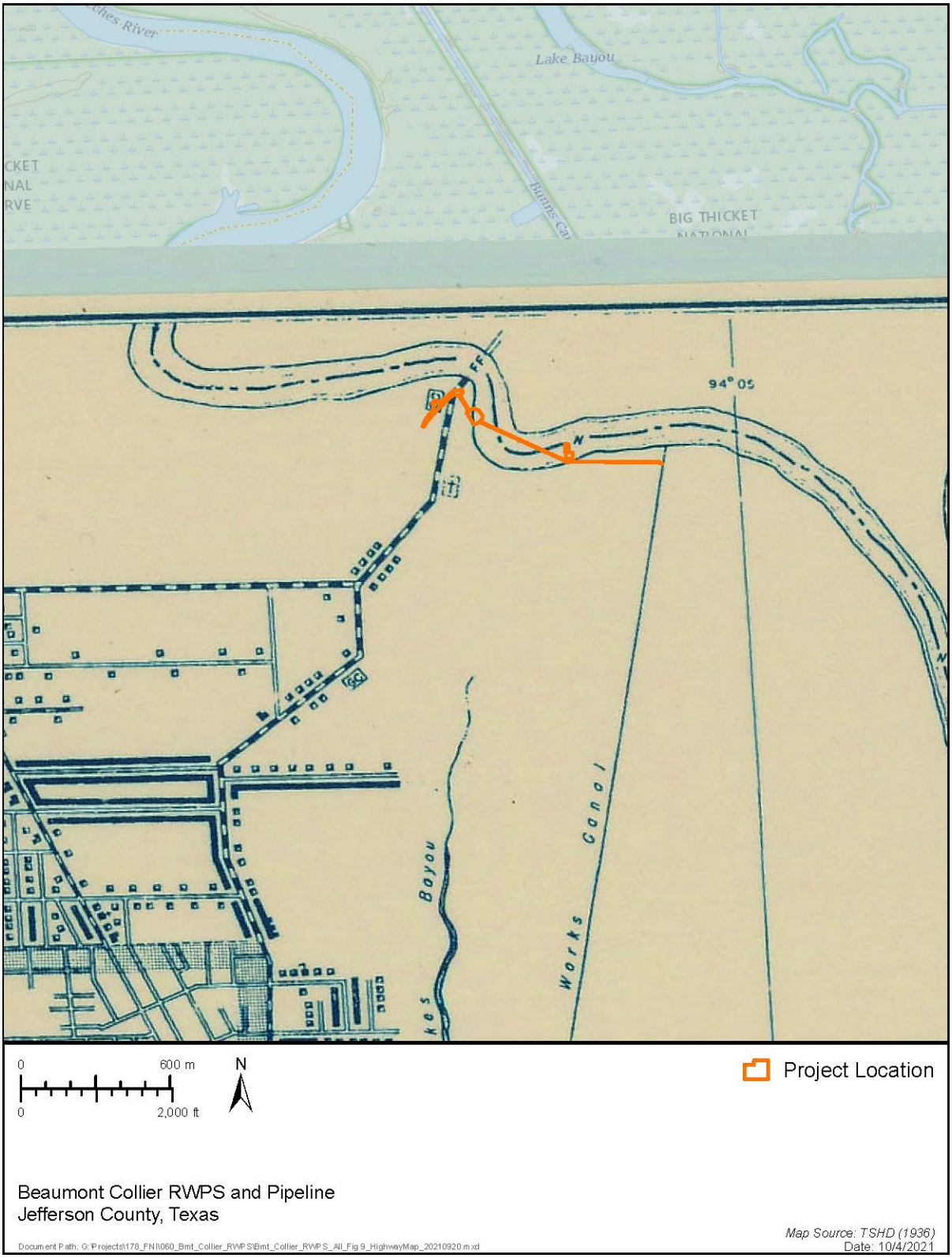

Figure 9. Project location shown on 1936 highway map.

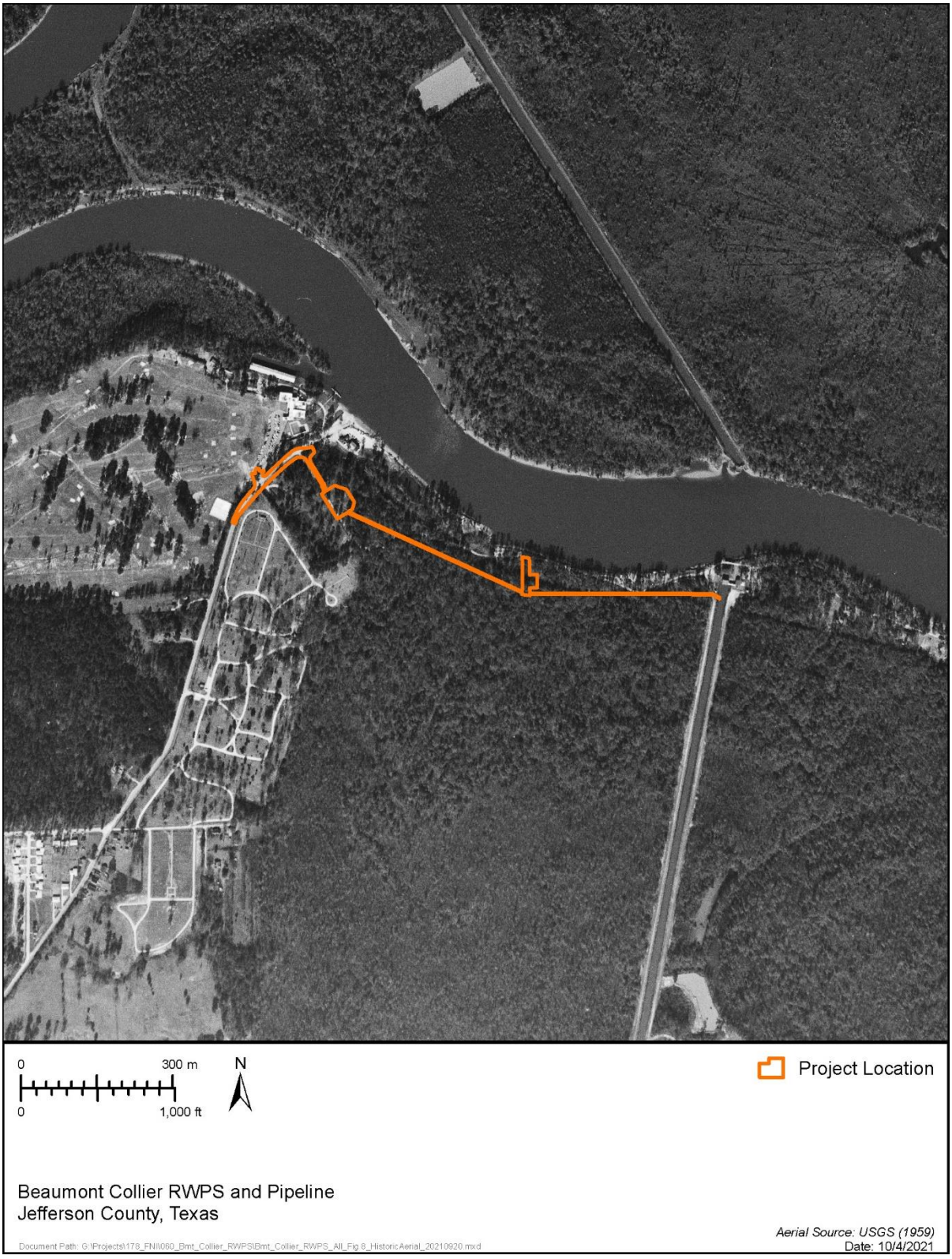

Figure 10. Project location shown on 1959 aerial photograph.

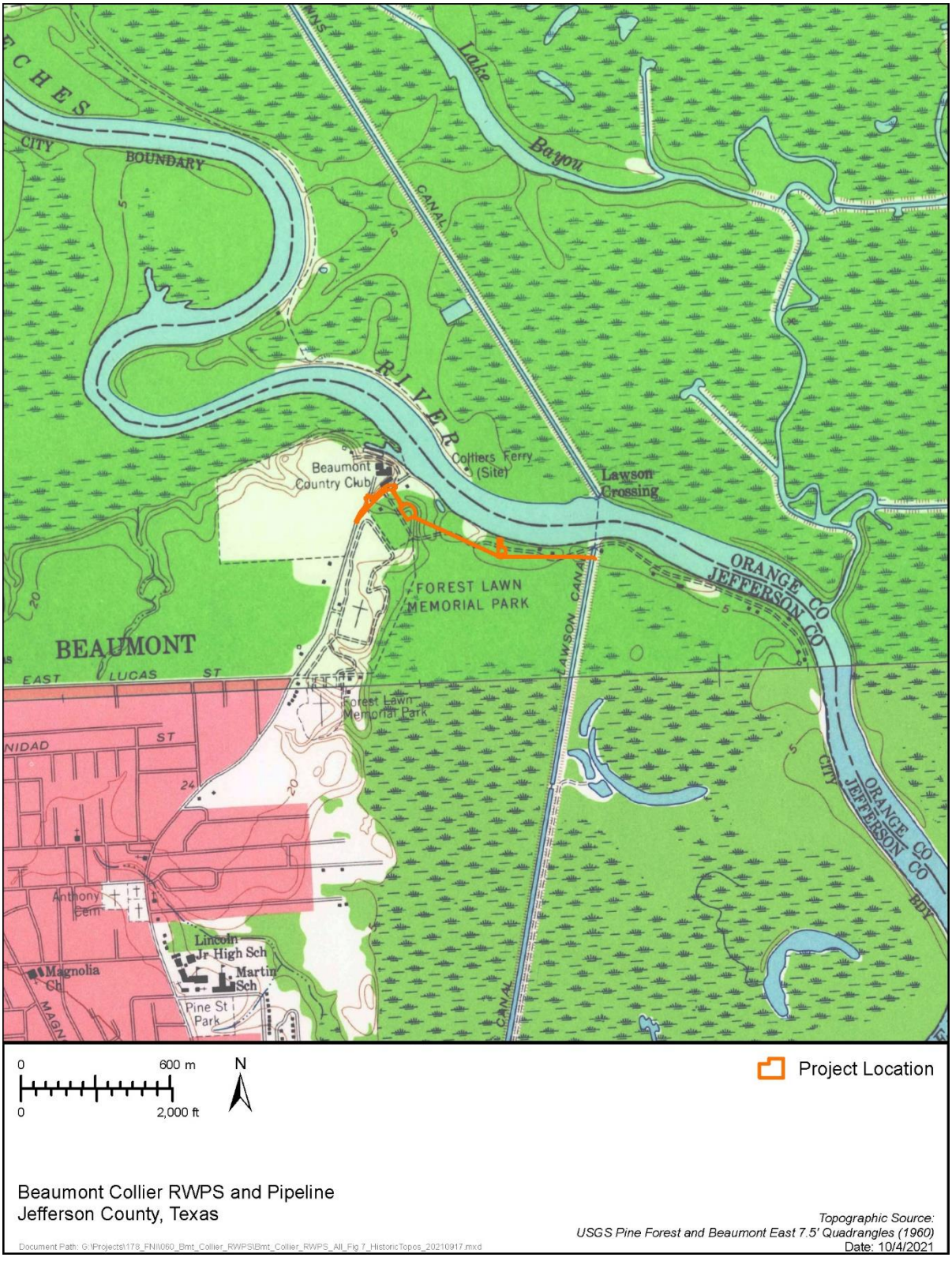

Figure 11. Project location shown on 1960 topographic map.

CHAPTER 5: RESEARCH DESIGN AND METHODOLOGY

Archaeological survey methods followed standards set forth by the Council of Texas Archaeologists (CTA) and included 100% visual inspection of the entire proposed project area with appropriate shovel testing, mechanical trenching, and documentation of sediment profiles. The alluvial sediment and proximity to the Neches River support the conclusion the project location has a high probability for archaeological sites and should be subject to an archaeological survey. Additional close-interval shallow trench scrapes were also completed in the project location to test the area adjacent to the Forest Lawn Memorial Park Cemetery for unmarked burials. The project location has been variably subjected to modern disturbance; only some locations are previously undisturbed and accessible for testing. Proposed survey methodology included manual and mechanical methods depending on prior disturbance, site access, and site conditions (Figure 12).

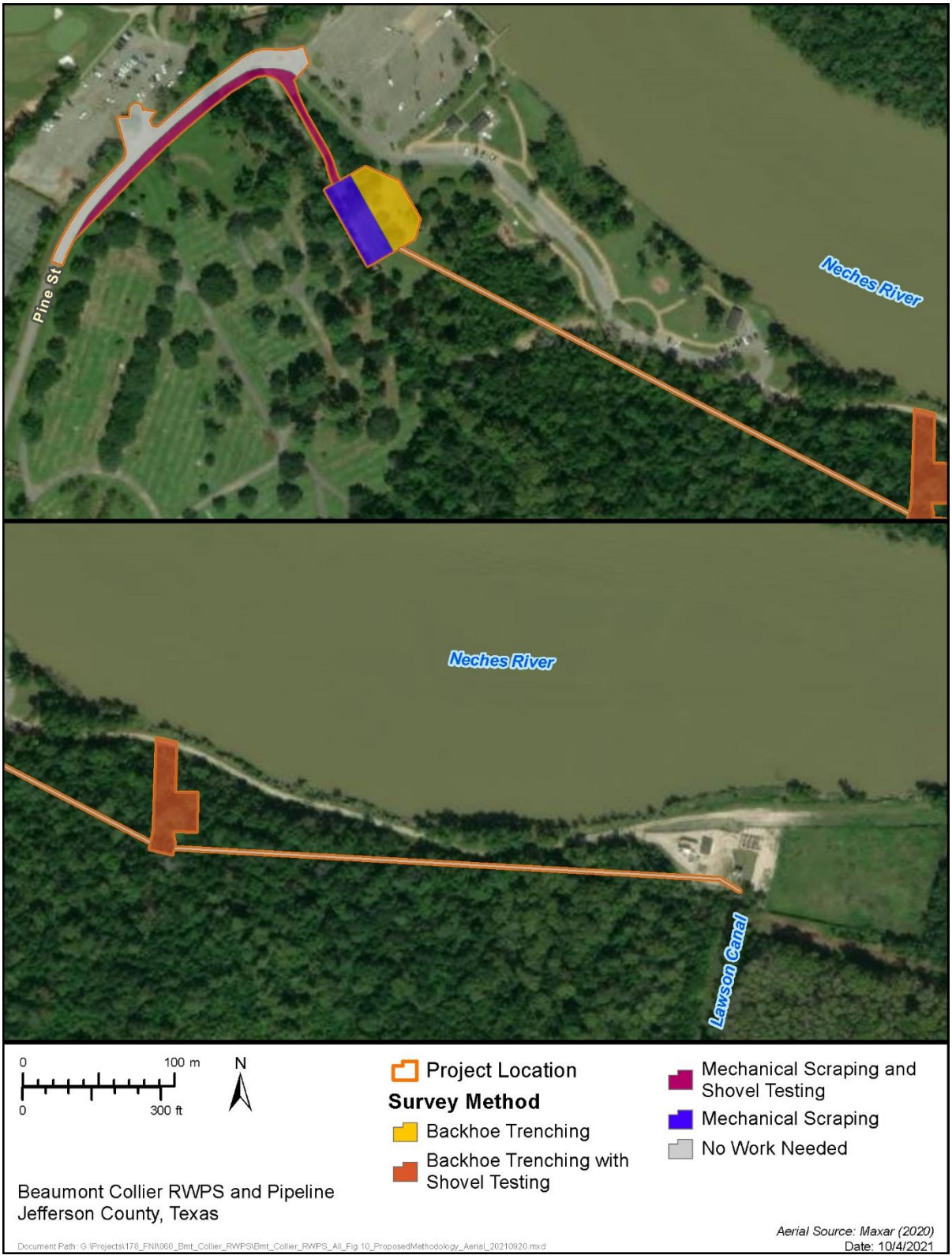

Figure 12. Proposed survey methods within the project location.

Survey Methods for the Proposed Project

Pine Street Widening and Resurfacing: The proposed project includes resurfacing and widening preexisting Pine Street that will provide access to the pump station compound. This portion of the project location was subject to shovel testing and mechanical scraping where field conditions allowed. No survey work was completed within the existing roadway due to the presence of impenetrable pavement.

Access Road Construction: The proposed project includes tree removal and construction of an access road between Pine Street and the proposed pump station compound. Shovel testing to survey for unrecorded archaeological sites and mechanical scraping to ensure no burials are present occurred within the project location.

Pump Station Compound Construction: The proposed project includes construction of a pump station compound, including the western boring pit location, enclosed in a site fence. Portions of the compound within 20 m (66 ft) of the current Forest Lawn Funeral Home and Memorial Park cemetery boundaries were subject to close-interval shallow trench scraping to ensure no burials are present within the project location. Archaeologists excavated two deep trenches within the alluvial soils of the pump station compound.

Pipeline Bored/Tunneled Location: The pipeline will be bored/tunneled at a depth of 10-15 ft below surface and this location was not tested.

Intermediate Boring Pit: This location will be subject to clearing, grubbing, and installation of a maintenance vault at the point of pipeline access. One deep trench within the intermediate pit location was planned within this area. However, the location was inaccessible to trenching equipment. Archaeologists excavated two shovel tests in this area.

Eastern Bore Pit Location: The bore pit at the eastern terminus will be placed within an existing pump station compound with associated pre-existing above and below ground infrastructure. This location is not part of the currently identified project location and no survey work was conducted in this area.

Geotechnical Bores: Thirteen geotechnical bores within and adjacent to the project location will be conducted. These require minimal soil disturbance and are not part of the currently identified project location. No survey work was conducted at the bore locations.

Shovel tests within the access road construction area were placed at intervals no greater than 30 m (98 ft). All other project areas subject to shovel testing were surveyed with a minimum of two per acre. Shovel tests measured 30 centimeters (cm; 12 inches [in]) in diameter and extended to a maximum depth of 80 cm (31 in) below surface (cmbs), sterile subsoil, or bedrock, whichever is encountered first. Shovel tests were excavated in 20-cm (8-in) increments, and all sediment was screened through ¼-in hardware mesh. Relevant information for all shovel tests were recorded on a standardized form. Sediment descriptions followed the USDA Soil Survey standards (Schoeneberger et al. 2012).

Equipment operators conducted mechanical scraping with a standard rubber-tire backhoe or similar equipment with a flat-bladed excavation bucket 61 cm (24 in) wide. Maintained lawns and areas that could be accessed by the mechanical equipment were given preference for mechanical excavation. Within the proposed widening of Pine Street, up to 30 linear meters (98 ft) were identified for scraping parallel to the existing street. Within the proposed access road, up to 10 linear meters (33 ft) were identified for scraping parallel to the planned route. Archaeologists altered field methods in these areas due to the presence of prior disturbance and buried utilities. Excavators could not scrape parallel to Pine Street, but 20 linear meters (65 ft) were scraped within the proposed access road.

Archaeologists placed two deep trenches to test for deeply buried archaeological sites within the proposed pump station compound. One was excavated parallel to the southwest project boundary,

within 20 m of the cemetery and allowed archaeologists to examine the area for evidence of unmarked burials. A second deep trench was excavated greater than 20 m from the cemetery to further test the landform for deeply buried sites.

Investigators placed close-interval shallow scraped trenches oriented northeast-southwest, to examine areas within 20 m of the cemetery for unmarked burials. These were perpendicular to interments in the closest portions of the existing cemetery and were placed judgmentally based on observed sediments, environmental conditions, and soil probes. Archaeologists excavated five close-interval shallow scraped trenches approximately nine meters (30 ft) apart. Sediment was excavated in shallow scrapes to a depth sufficient to confirm the presence/absence of likely human burials based upon features, artifacts, or actual human remains consistent with human burials.

If at any time evidence of human burials was identified (e.g., burial shafts, associated artifacts, human remains), all work in the immediate vicinity would have ceased until FNI, the City, and the THC could be notified. Work would have continued away from the find location(s) during initiation of the Protocol for Protection and Treatment of Human Burial Remains if archaeologists were confident the discovery will not be impacted as a result.

All shovel tests, trenches, sediment profiles, features, and anything else deemed significant were mapped using the ArcGIS Field Maps application on devices with approximately 3.5 m (11.5 ft) accuracy, photographed in detail, and fully documented. Photographs were taken to document project area conditions, landforms, and any sites observed during survey. All excavations were backfilled, and the area restored as close to its original elevation as possible. Had any archaeological sites been identified during this field effort, AmaTerra would have submitted site forms for any new or relocated archaeological sites to the Texas Archeological Research Laboratory (TARL) following fieldwork.

Archaeological sites were defined in the approved antiquities permit application scope of work as resources containing a certain number of cultural materials or features older than 50 years within a given area. The definition of a site is: (1) five or more surface artifacts within a 30-m radius, or (2) a single cultural feature observed on the surface or exposed during shovel testing, or (3) a positive shovel test containing at least three total artifacts, or (4) two positive tests located within 30 m of one another.

Boundaries would have been identified for any cultural materials older than 50 years encountered in compliance with THC/CTA survey standards within the project area. All archaeological sites identified within the project area during the survey would have been investigated by means of no fewer than six subsurface tests to define site boundaries relative to the study area unless bedrock/water table was encountered, or if the site was limited to surficial contexts. Specific site information would have been recorded on standardized forms and presented to the TARL for inclusion in their archives and assignment of new site trinomials when appropriate.

Project documents including records, notes, and photographs will be curated at the Center for Archaeological Studies at Texas State University in San Marcos. Any artifacts found on either the surface or in shovel tests were field catalogued then returned to their original locations. No artifacts were observed or collected during the survey.

Protocol for Protection and Treatment of Human Burial Remains

Any historical human burials and cemeteries encountered would have been treated in accord with provisions of the Texas Health and Safety Code (Title 8, Subtitle C, Chapter 711.037[A-D]) in addition to the requirements of the ACT. Historical Native American burials and cemeteries would also be treated under this protocol. These laws require that all exhumation, handling, treatment, and reburial of human burial remains be done with dignity and respect for the individual.

Archival photographs and maps depicting the proposed construction project footprint and oral history interviews with Forest Lawn Funeral Home and Memorial Park staff all suggested that the survey location is unlikely to contain unmarked burials, however, given the proximity to the cemetery boundary, human remains may have been identified during survey. If evidence of human burials (e.g., burial shafts, associated artifacts, human remains) were identified during the project, all ground-disturbing work at that location would have been stopped and FNI, the City of Beaumont, and the THC would have been notified immediately. Assistance would have been requested in developing a plan for the appropriate and respectful identification, analysis, and treatment of the human remains.

At the time of discovery, all exposed human remains would have been immediately covered with light weight plastic sheeting and reburied under a shallow blanket of soil to prevent unnecessary exposure while a final determination was made regarding treatment of the discovered remains. The City would have ensured the discovery site was secured and protected from damage or vandalism 24-hours per day, every day until final plans were implemented to avoid or relocate the burial remains. Individuals or groups not directly involved with the archaeological investigations would not be allowed to view, handle, or photograph human remains, except by authorization of the THC, in consultation with the City.

After discovery, further exploratory investigations may have been performed around the discovery site within the project limits to determine whether other burials are present nearby. The purpose of these investigations would be to determine whether the burial is an isolated occurrence or part of a larger group of burials associated with the adjacent cemetery with boundaries that may extend into the project location. If official determinations were made to exhume and relocate the discovered human remains, burial removals would have complied with the Texas Health and Safety Code (Title 8, Subtitle C, Chapter 711.037[A-D]) and the Texas Administrative Code Title 13, Part 2, Chapter 22.5. All human remains and funerary objects would be carefully removed using manual archaeological techniques under a burial exhumation plan approved by the Texas Historical Commission and the local police department. This plan would include field and laboratory methods in accord with professional standards for documenting objects recovered during archaeological excavations and would include photographs, drawings, and notes. Such documentation and associated physical anthropological studies would serve as a basis to determine cultural, ethnic, or racial affiliation. If the City and State determined those additional analytical techniques are required, those techniques would be non-destructive and performed under the direction of a professional physical anthropologist.

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CHAPTER 6: RESULTS

AmaTerra archaeologists conducted an intensive cultural resources survey, including shovel testing, survey level deep mechanical prospection, and near-surface mechanical trenching within the project location between November 29 and December 1, 2021. Survey consisted of pedestrian survey, three shovel tests, two deep trenches, and six trenches of variable depth within the project location (Figure 17). No archaeological materials were recorded, and no evidence of burials was observed during the survey. Fieldwork documented floodplain and river terrace sediments, as well as evidence of sediment disturbance within the project location.

Local environmental conditions are variable within the project location. Along Pine Street, vegetation is periodically mowed grasses within an area that has been channeled to direct area surface water towards buried drains evident at the intersection of Pine Street with the entrance of Collier's Ferry Park (Figure 13). This area also contains buried electrical and phone lines, overhead power lines, and power poles for overhead power lines.

Figure 13. Environment of the project location along Pine Street.

Most of the project location, including the proposed access road and pump station, is currently within Collier's Ferry Park in a relatively open area between park infrastructure and the fence along the southwestern boundary between the park and the Forest Lawn Funeral Home and Memorial Park. Vegetation in this area consists of a regularly mowed, short grass lawn with live oaks, tall variety crape myrtles, and short leaf pines planted approximately 30–40 years ago. A line of pines adjacent and parallel to a small barrier of concrete posts and wire cable fence line extends from the park parking lot to the park's southeastern boundary (Figure 14). These are approximately where the slope of the small ridge increases. An existing area gravel access road, now largely covered in leaf litter and some accumulated sediment, runs parallel to the southwest park and project boundary. The electrical and power lines that extend through this area connect to a small power facility

surrounded by a six-foot privacy fence just beyond the northeast boundary of the project area. The project area also contains a water sampling well (Figure 15).

Figure 14. Environment of the project location within Collier's Ferry Park.

Figure 15. Environment of the project location within Collier's Ferry Park, showing water sampling well and small power facility.

The intermediate boring pit location is within a wetland environment, just north of an existing access road that extends from Collier's Ferry Park, along the river, to the existing pump station to the east. The ground is covered with heavy leaf litter and medium grasses occur where the canopy allows enough light. The area shows evidence of frequent flooding and supports a young forest of mixed hardwoods and pines (Figure 16).

Figure 16. Overview of the intermediate boring pit location environment from the access road.

Shovel Testing

Shovel testing was proposed in three portions of the project location: the area parallel to Pine Street where the existing road would be widened, an access road extending from Pine Street to the proposed pump station compound, and the intermediate boring pit location. A total of three shovel tests were excavated to supplement mechanical trenching operations.

AmaTerra archaeologists did not excavate shovel tests parallel to Pine Street. This area contains an excavated and maintained ditch, concrete pipe culverts and drains, as well as buried electrical and telephone lines (Figure 18 and Figure 19).

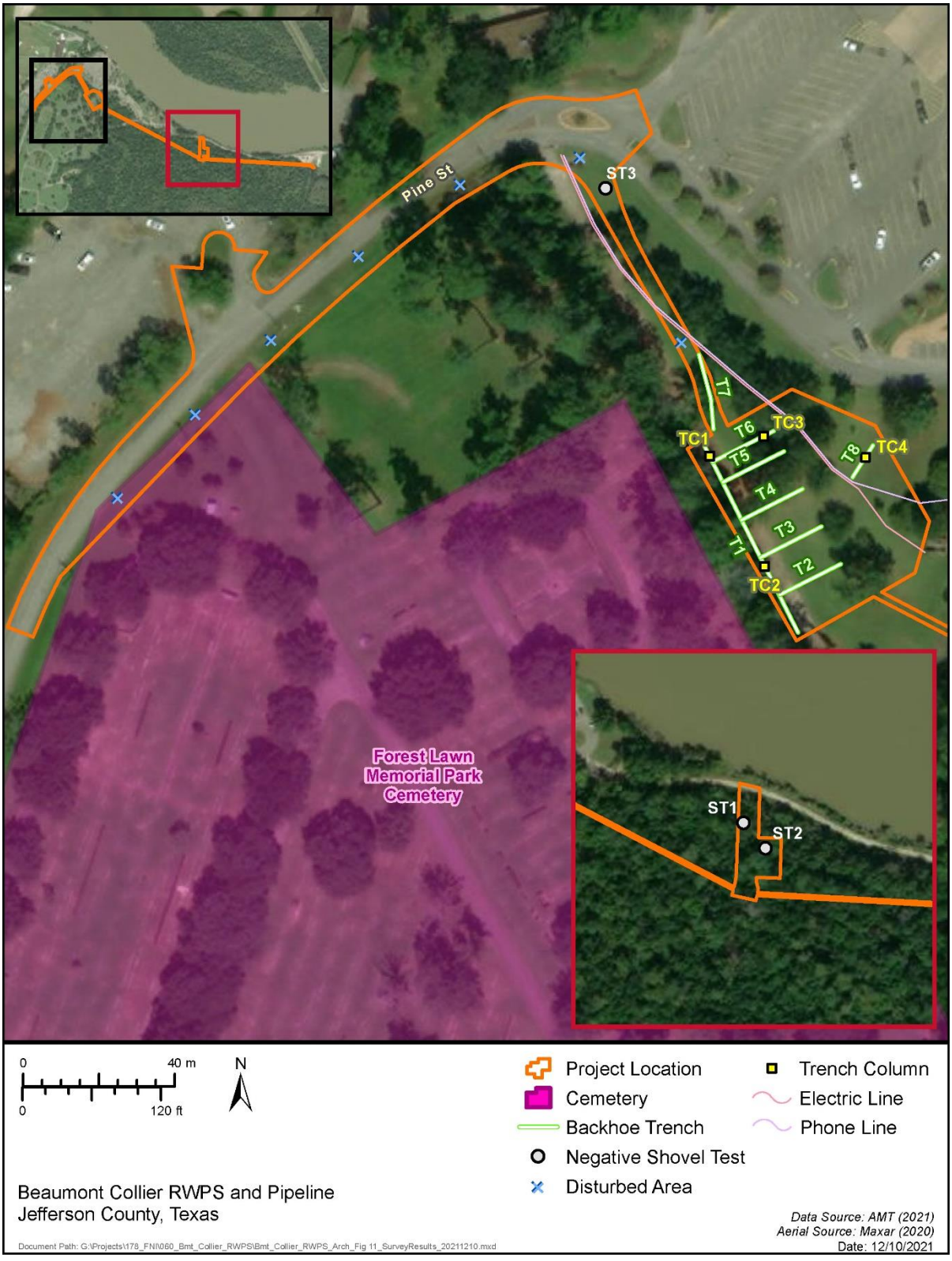

Figure 17. Survey results within the project location.

Figure 18. View of project location northeast along Pine Street with buried utilities.

Figure 19. View of project location southwest along Pine Street with buried utilities.

These same utilities are buried within the location of the proposed access road (Figure 20). Therefore, only one shovel test was excavated in this section. The soil profile for ST3 consisted of a

very dark gray (10YR 3/1) sandy clay loam 0–10 cmbs, over a gray (10YR 6/1) clay 10–40 cmbs, underlain by a brown (10YR 4/3) clay. The shovel test was terminated due to reaching basal clays and the water table. It was negative for cultural material.

Figure 20. Utilities marked through the proposed access road location.

Archaeologists excavated two shovel tests at the intermediate boring pit location. The soil profile for ST1 consisted of a light yellowish brown (10YR 6/4) sandy loam 0–80 cmbs. ST2 had more noted stratification, with the soil profile consisting of a brown (10YR 5/3) sandy loam 0–20 cmbs, a brown (10YR 4/3) sandy loam 20–40 cmbs, a brown (10YR 4/3) sandy clay loam 40–50 cmbs, a brown (10YR 4/3) sandy clay mottled 40% with a brownish yellow (10YR 6/6) sandy clay 60–80 cmbs, and a light brownish gray (10YR 6/2) sandy clay mottled 20% with a brownish yellow (10YR 6/6) sandy clay 80–100 cmbs. Shovel tests were terminated having reached depths and were negative for cultural material. These deep sandy loams are characteristic of the modern wetland floodplain environment.

Backhoe Trenching

Survey level mechanical prospection and near-surface mechanical trenching was completed within the proposed pump compound and access road locations. Work included one deep trench within the pump compound location near the Forest Lawn Memorial Park Cemetery, five near-surface trenches within the pump compound location, one near surface-trench within the access road location, and one deep trench greater than 20 m from the cemetery within the pump compound location. All trenching efforts were monitored by an archaeologist with 30 × 30 cm trench columns (TC) excavated by hand, screened through ¼ inch hardware mesh, and sediment descriptions collected.

Trench 1 (T1)

Survey level mechanical prospection began with Trench 1 (T1) placed parallel to the southwest boundary of the planned pump station compound location, adjacent and across the existing area access road (Figure 21). With this placement, archaeologists tested the area nearest to the Forest Lawn Funeral Home and Memorial Park for unmarked burials, surveyed the ridge adjacent to the access road - the most likely location of 41JF1 - and tested a large cross section of ridge sediments. The access road along the property boundary was visible within the trench as an expected disturbance recorded to a depth of 20–45 cmbs. This disturbance contained gravel, asphalt, brick fragments, and shell fragments. No other cultural materials or features were recorded within T1, and no evidence of unmarked burials was observed.

Figure 21. Trench 1 excavated, photographed approximately 20 m from the start of excavation.

The trench was 61 cm wide and extended 47.5 m, beginning excavation at the northwest boundary, and extending to the southeast boundary of the proposed pump station location. It was excavated approximately 2 m below surface for the first 35 m and 1.5 m below surface for the remaining 12.5 m. Two trench columns, TC1 and TC2, were recorded within T1.

TC1 was placed at the northwestern end of T1 (Figure 22; Table 1). The small A horizon at the surface contained road surface inclusions: angular granite gravels, small brick fragments, and some broken shell. Below the topsoil, fine sandy and loamy sediments are heavy in clay content. The gravel content extended to 18 cmbs. Redoximorphic features start at 60 cmbs. Boundaries between redox concentrations and depletions increase in prominence and to clear boundaries with depth. The area water table was recorded at 180 cmbs. A horizon typically 90–100 cmbs containing calcium carbonate concentrations, containing masses to small concretions, was present beginning approximately 20 m from the start of the trench. Sediments appear to consist of natural, undisturbed alluvial deposits beyond the disturbance in the top 20 cm of the profile. No artifacts were observed within TC1.

Figure 22. Sediments at TC1, top of profile (let) and bottom of profile (right).

Table 1. Sediment Descriptions for TC1, Trench 1.

Horizon	Depth (cmbs)	Description
A	0–9	very dark brown (10YR 2/2) loam; common fine roots throughout; 10% angular granite gravel with minor inclusion of broken brick and shell; gradual smooth boundary
AB	9–18	yellowish red (5YR 4/6) clay loam; common medium to coarse roots throughout; gradual smooth boundary
Btg1	18–63	yellowish red (5YR 5/6) clay; common light greenish gray (Gley 1 8/10Y) iron depletions with clear boundaries; gradual smooth boundary
Btg2	63–80	reddish yellow (7.5YR 6/8) fine sandy clay; common light greenish gray (Gley 1 8/10Y) iron depletions with clear boundaries; gradual smooth boundary

Horizon	Depth (cmbs)	Description
Btg3	80–164	reddish yellow (7.5YR 6/8) fine sandy clay loam; common light greenish gray (Gley 1 8/10Y) iron depletions with abrupt boundaries; clear smooth boundary
BCtg	164–180	reddish yellow (7.5YR 6/8) fine sandy clay; common light greenish gray (Gley 1 8/10Y) iron depletions with abrupt boundaries; clear smooth boundary
BCg	180–200	reddish yellow (7.5YR 6/8) fine sand; common light greenish gray (Gley 1 8/10Y) iron depletions with abrupt boundaries

At approximately 20 m from the start of T1, a paleosol was visible running through the sediment profile of the trench (Figure 23). TC2 was placed 32 m from the start of T1 and placed to record a sediment profile that captured the paleosol (Table 2). Topsoil sediments were mixed with angular granite gravels, broken brick, and shell characteristic of disturbance and imported materials for the existing access road to 20 cmbs, over fine yellowish red sandy clays. The visible paleosol occurred 105–117 cmbs over fine yellowish brown sandy clays. A horizon typically 117–149 cmbs containing calcium carbonate concentrations, containing masses to small concretions was present below the paleosol. No artifacts were observed in TC2.

The trench excavation method was altered following recording of TC2, to dig to a depth just below the paleosol. The remainder of the trench, 32–47.5 m from the start, was excavated to a depth of approximately 1.5 m below surface.

Figure 23. Sediments at TC2.

Table 2. Sediment Descriptions for TC2, Trench 1.

Horizon	Depth (cmbs)	Description
A	0–10	black (10YR 2/1) clay loam; common fine roots throughout; 10% angular granite gravel with inclusion of broken brick and shell; gradual smooth boundary
E	10–20	yellowish red (5YR 5/6) fine sandy clay; common medium roots throughout; common very pale brown (10YR 7/3) iron depletions with gradual boundaries; gradual smooth boundary
Btg1	20–58	yellowish red (5YR 4/6) clay; common fine to medium roots throughout; common light blueish gray (Gley 2 7/10B) iron depletions with clear boundaries; gradual smooth boundary
Btg2	58–90	yellowish red (5YR 4/6) clay; common light blueish gray (Gley 2 7/10B) iron depletions with clear boundaries; gradual smooth boundary
Btg3	90–105	brownish yellow (10YR 6/6) clay; common light blueish gray (Gley 2 7/10B) iron depletions with clear boundaries; gradual smooth boundary
Agb	105–117	brownish yellow (10YR 6/6) clay mottled with black (10YR 2/1) clay; clear smooth boundary
Bkgb1	117–149	light blueish gray (Gley 2 7/10B) sandy clay mottled with brownish yellow (10YR 6/6); calcium carbonate nodules and concretions; clear irregular boundary
Bkgb2	149–184	light blueish gray (Gley 2 7/10B) sandy clay mottled with brownish yellow (10YR 6/6); clear irregular boundary

Evidence of disturbance from the existing roadbed was observed to depths of 20 to 45 cmbs, increasing in depth as the landform increased in elevation. As the trench was excavated toward the southeastern boundary, road composition changed from a surface gravel bed containing some brick fragment and shell at lower elevations, to a prepared roadbed containing larger brick fragments with gravels and a layer of light crushed limestone and shell overlain by degraded asphalt (Figure 24). Trench excavation was completed 2.5 m from the southeastern project boundary as cemented asphalt was encountered.

Figure 24. Roadbed disturbance visible near the end of T1 at the highest elevation.

Trenches 2–7 (T2–T7)

Trench 2 (T2) through Trench 6 (T6) were excavated within the proposed pump station area and Trench 7 (T7) was excavated within the proposed access road location (Figure 25-Figure 30). Each was excavated to the top of undisturbed subsoil to examine the area for evidence of disturbance or other changes in sediment indicative of unmarked burials (Table 3). T2–T4 were generally shallower with undisturbed subsoil encountered sooner than in T5–T7 where disturbed soils containing modern trash was deeper in the lower elevations below the ridge, north of the line of planted pines and concrete post-fence. T7 was 20 m long and excavated to variable depths to reach undisturbed sediments: 50 cmbs in the southwestern end, 110 cmbs in the middle, and 80 cmbs in the northeastern end of the trench. T2–T6 had an inactive phone line within the southeastern end of the trench. This same line ran within T7, and the trench was shifted approximately 50 cm northeast in an attempt to avoid it (Figure 30). One trench column was manually excavated within T3, TC3 (Figure 31). No artifacts or features greater than 50 years in age were encountered and no evidence of unmarked burials was observed.

Figure 25. Trench 2 excavated.

Figure 26. Trench 3 excavated.

Figure 27. Trench 4 excavated.

Figure 28. Trench 5 excavated.

Figure 29. Trench 6 excavated.

Figure 30. Trench 7 excavated.

Table 3. Sediment Descriptions for T2–T7.

Trench	Depth (cmbs)	Description
T2	0-10	dark brown (7.5YR 3/2) loam
	10-30	yellowish red (5YR 4/6) clay; common light gray (Gley 1 7/N) clay iron depletions
T3	0-10	dark brown (7.5YR 3/2) loam
	10-30	yellowish red (5YR 4/6) clay
T4	0-10	dark brown (7.5YR 3/2) loam
	10-30	yellowish red (5YR 4/6) clay; few light gray (Gley 1 7/N) clay iron depletions
T5	0-19	dark grayish brown (10YR 4/2) loam with pockets of crushed shell and angular granite gravel, modern trash
	19-35	yellowish brown (5YR 4/6) mottled with 10YR 7/4 fine sandy clay loam
T6*	0-30	dark grayish brown (10YR 4/2) clay loam, modern trash
	30-51	grayish brown (10YR 5/2) fine sandy clay, modern trash
	51-90	brownish yellow (10YR 6/8) mottled with light gray (10YR 7/1) fine sandy clay
T7	0-20	very dark grayish brown (10YR 3/2) clay loam, modern trash
	20-40	brown (10YR 4/3) fine sandy clay, modern trash
	40-80	dark yellowish brown (10YR 6/4) fine sandy clay

*TC3 was excavated within TC6

Figure 31. Sediment at TC3.

Trench 8 (T8)

Trench 8 (T8) was placed within the northeastern portion of the planned pump station compound location, northeast of the buried utility lines. The trench was oriented across the ridge slope, towards the Neches River (Figure 32). Archaeologists sought to test this area for deeply buried sites on the ridge and record a cross section of ridge sediments. The trench was 61 cm wide and extended a maximum of 5.5 m, with 4m excavated to a depth of 205 cmbs. One trench column, TC4, was recorded within T8. No cultural materials or features were recorded within T8, and no evidence of unmarked burials was observed.

Figure 32. Trench 8 excavated.

TC4 was placed at the northeastern end of T8 (see Figure 17). The A horizon was thin and underlain by sediment with redoximorphic features with yellowish brown concentrations and light gray depletions (Figure 33; Table 4). Calcium carbonate concentrations, containing masses to small concretions, were present at 54 cmbs. These made up to 50% of the sediment matrix 54–104 cmbs and were present at lower levels, but as a smaller percentage of the matrix. Iron-manganese nodules were present 104–140 cmbs. Redoximorphic features had clear boundaries with 80% of the matrix depleted of iron and manganese 140–205 cmbs. Sediment below 54 cmbs was variable sandy loams or sands without strong evidence of illuvial concentration of clay. No evidence of the paleosol observed in T1 was recorded. Sediments consist of natural, undisturbed alluvial deposits. No artifacts were observed within TC1.

Figure 33. Sediments at TC4.

Table 4. Sediment Descriptions for TC4, Trench 8.

Horizon	Depth (cmbs)	Description
A	0–4	dark grayish brown (10YR 4/2) clay loam; common fine roots throughout; clear smooth boundary
Btw	4–54	light gray (10YR 7/1) mottled with brownish yellow (10YR 6/8) fine sandy clay; common medium roots throughout; irregular gradual boundary
Ckg1	54–104	light gray (10YR 7/1) mottled with brownish yellow (10YR 6/8) fine sandy loam; 40% calcium carbonate concentrations and nodules; wavy gradual boundary
Ckg2	104–140	brownish yellow (10YR 6/8) fine sandy loam; 10% calcium carbonate concentrations; common light gray (10YR 7/1) iron depletions with gradual boundaries; gradual smooth boundary
Ckg3	140–205	light gray (10YR 7/1) mottled with brownish yellow (10YR 6/8) fine sand; <5% calcium carbonate concentrations

Discussion

The current archaeological survey can be seen as an intensive investigative follow-up to the survey work completed in the area by Moore and Aronow (1993). Like the previous work, shovel testing during this survey documented recent Holocene alluvial deposits with little to no soil profile development within the floodplain. These relatively young deposits and the active meandering of the Neches River make the formation and preservation of sites in this area unlikely.

The terrace 1 formation, where the proposed pump station sits on the edge of the landform, is of greater age than the surrounding floodplain. It is mapped as a part of the area Beaumont Formation (Barnes 1992) that has provided people in the past a stable landform resistant to Holocene period river meandering, with better drainage and greater elevation. This gives some flood protection and good views of the river valley. Moore and Aronow (1993) identified this landform as being the most likely location for site 41JF1 but did not observe any cultural materials during their survey. Their study concluded the hill was covered with 0.3–1.0 m of relocated fill dirt and recommended excavation of trenches 1–1.5 m deep to test the area for archaeological deposits below this fill.

The current survey work tested the terrace 1 formation within the project location up to 2 m in depth. Sediment observations confirmed the presence of a buried soil at 1 m below surface at the hill summit. However, field observations do not suggest the sediment over this paleosol is very recent fill. The summit of the terrace where T1 was placed is not elevated on the landscape above the adjacent portions of the landform extending southwest. Sediment over the buried soil presents redoximorphic features consistent with in situ development. The original description of the recovery of artifacts from 41JF1 in 1940 noted they were in the backslope of a road that runs across a ridge (Arnold 1940a). Current survey trenching efforts documented that the access road across this terrace was not buried or entrenched by fill since its construction. The access road occurs over the buried soil. Additionally, Moore and Aronow noted city and county employees could identify no fill relocation event.

Following current observations, sediments over the paleosol are most likely natural alluvial deposits on the lowest Pleistocene-age Beaumont Formation following sea level transgression and greater sediment deposits in the Neches River Valley. The archaeological materials and site 41JF1 would be located near the surface of terrace 1 based on the description on the original site form. The current survey identified no evidence of archaeological materials near the modern surface or near the buried soil.

Sediments in T8 showed no evidence of the buried surface observed in T1. Sands and loams were most common in the profile with less clay accumulation than in T1, indicative of active floodplain sediments at lower elevations and younger in age than the Beaumont Formation clays.

T5-T7 reflected poorly drained, organic sediments with modern trash dating to the late 1970s and 1980s, based upon the manufacture codes observed on alcohol bottles and cans. Underneath this surface accumulation that extended up to 100 cmbs in some locations, were wet clays consistent with a persistent high water table and frequent area flooding.

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CHAPTER 7: CONCLUSIONS AND RECOMMENDATIONS

AmaTerra conducted an archaeological survey in advance of the proposed Collier Raw Water Pump Station and its associated pipeline north of Beaumont, Jefferson County, Texas. The project was conducted to comply with the Antiquities Code of Texas (ACT) Texas Natural Resources Code, Title 9 Chapter 191, and its associated regulations (13 TAC 26). Vegetation within the project area consisted of short grasses in roadside ditches, maintained park lawn with some mature trees present, and moderately dense forest on the area floodplain.

AmaTerra conducted pedestrian survey, three shovel tests, two deep trenches, and six trenches of variable depth within the project location. Shovel tests placed within the intermediate bore pit documented deep frequent floodplain deposits in the area wetland with no soil development. Trenching within the proposed pump station location documented a terrace with at least two surfaces within the Neches River valley favorable to past human activity, but no evidence of archaeological sites was identified. Trenches and a shovel test at lower elevations adjacent to the terrace within the proposed pump station and access road location recorded modern fill and trash over undisturbed sediment deposits. Fieldwork documented significant ground disturbance within the project location adjacent to Pine Street. The survey documented no archaeological sites within the project location and no evidence of unmarked burials.

In accordance with the ACT, the Principal Investigator recommends the proposed project should proceed with no further consultation or field investigations. In the unlikely event that archaeological resources are inadvertently encountered all work should cease until those resources can be investigated by a professional archaeologist and coordinated with the appropriate representatives of the THC. In the unlikely event that unmarked burials are inadvertently encountered all work should cease, the burials protected, and access limited until the appropriate representatives of the City of Beaumont and THC can be notified and further plans made in accordance with provisions of the Texas Health and Safety Code (Title 8, Subchapter C, Chapter 711.036[a]) in addition to the requirements of the ACT.

Complying with the stipulations of the associated Antiquities Permit, all project-generated photographs, notes, and records will be permanently curated at the Center for Archaeological Studies at Texas State University, San Marcos, Texas.

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APPENDIX: SHOVEL TEST LOG

UTM NAD 83 Zone 14

Shovel Test	Results	Northing	Easting	Description*	Additional Notes
ST1	Negative			0–80 10YR 6/4 F Sa Lo	
ST2	Negative			0–20 10YR 5/3 Sa Lo 20–40 10YR 4/3 Sa Lo 40–60 10YR 4/3 Sa Cl Lo 60–80 10YR 4/3 Sa Cl / 40% 10YR 6/6 Sa Cl 80–100 10YR 6/2 Sa Cl / 20% 10YR 6/6 Sa Cl	
ST3	Negative			0–10 10YR 3/1 Sa Cl Lo 10–40 10YR 6/1 Cl 40–63 10YR 4/3 Cl	Modern trash common 0–40 cmbs

* Cl – Clay, Lo – Loam, Si – Silt, Sa – Sand, F – Fine, / - Mottled